

The Collembola of New Mexico. II. Neanurinae^{1, 2}By HAROLD GEORGE SCOTT³

Thirteen species of springtail insects are recorded in this part. None has been reported previously from New Mexico.

Subfamily NEANURINAE Börner, 1901

Head prognathous; mouthparts suctorial; pseudocelli absent; anal spines, postantennal organ, and furcula present or absent.

Tribe *Pseudachorutini* Börner, 1906

Anal segment small; supra-anal valve rounded; segmental tubercles absent; buccal cone present or absent.

Genus *Pseudachorutes* Tullberg, 1871

Mouthparts projecting in a cone; eyes 8 and 8; postantennal organ, when present, with 6–20 tubercles; unguiculus and anal spines absent; furcula present.

***Pseudachorutes aureofasciatus* (Harvey, 1898).**

NEW MEXICO RECORDS. From Berlese of (1) clumps of dead yucca and soil around roots, 6,100 ft., 13 mi. S of Lamy, Santa Fe Co., 30–vii–1953; (2) mesquite litter, 4,800 ft., 18 mi. N of Socorro, Socorro Co., 24–vii–1954.

DISTRIBUTION. Iowa, Maine, N. M., N. Y.

***Pseudachorutes subcrassoides* Mills, 1934.**

NEW MEXICO RECORDS. Taken 6 times from beneath logs or litter (oak, yellow pine, aspen, spruce, fir, juniper): 7,400 to

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² Part I, Ent. News, 71: 53–62; associated articles, Ent. News, 69(8): 202, and 70(1): 13–16.

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9,000 ft.; Rio Arriba, Sandoval, Santa Fe, San Miguel, and Bernalillo Co.; May-Sept., 1951-1953.

DISTRIBUTION. Iowa, N. M., N. Y.

Genus **Friesea** Dalla Torre, 1895

Furcula present, not reaching collophore; eyes 5 and 5 or 8 and 8; postantennal organ absent; anal spines 3.

Friesea claviseta Axelson, 1900.

NEW MEXICO RECORDS. From Berlese of oak litter, 7,400 ft., Doc Long's Picnic Area, Sandia Mts., Bernalillo Co., 29-v-1951.

DISTRIBUTION. Iowa, N. M., N. Y., N. C., Europe.

Friesea pentacantha Mills, 1934.

NEW MEXICO RECORDS. From Berlese of rotted cottonwood stump, along Rio Grande, 4,100 ft., 12 mi. S of Hatch, Dona Ana Co., 27-xi-1949.

DISTRIBUTION. Iowa, N. M.

Genus **Xenyllodes** Axelson, 1903

Furcula present, not reaching collophore; eyes 5 and 5; postantennal organ with 3 lobes; anal horns 2.

Xenyllodes alpinus sp. nov. Figure 1.

TYPE LOCALITY. *Holotype* and 4 *paratypes* from base of Pecos Baldy Mt., Mora Co., NEW MEXICO; Berlese of bristlecone pine-spruce litter, 11,700 ft., 8-ix-1954.

DESCRIPTION. Body elongate, not subglobose; segmentation distinct, segments without ankylosis; integument tuberculate; clothed by short to moderately long setae; color white to pale yellow mottled with blue; intersegmental regions of abdomen without blue markings; legs and furcula pale; head prognathous; ratio of antenna to head as 12:13; postantennal organ present, with 3 tubercles; eyes 5 and 5 on dark eyepatches; mouthparts suctorial; tibiotarsus without distal subsegment;

claws tunicate; ratio of unguiculus III to unguis III as 1:4; unguiculus I and II rudimentary; one weakly knobbed tenent hair; unguis without true teeth, but with 3-4 rounded tuberculations; unguiculus without teeth; furcula not reaching collophore; mucro distinct from dens; mucro lamellate; anus terminal; anal spines 2, each one-half length of unguis III; body length 0.7 mm.

DISCUSSION. *Xenyllodes alpinus* is differentiated from other known members of the genus by the following combination of characters: Integument tuberculate; postantennal organ with 3 tubercles; each foot with 1 weakly knobbed tenent hair; unguiculi I and II reduced; Abd V and VI not demarcated strongly from rest of body.

***Xenyllodes hoffi*, sp. nov.** Figure 2.

TYPE LOCALITY. *Holotype* and 10 *paratypes* from one-eighth mi. E of Cole Springs, Sandia Mts., Bernalillo Co., NEW MEXICO; Berlese of acorn (oak) hulls, 7,400 ft., 21-vii-1951.

DESCRIPTION. Body elongate, not subglobose; segmentation distinct, segments without ankylosis; integument minutely granulate; clothed by short setae; orange with dark blue reticulations; intersegmental areas often with darker blue pigment; head prognathous; ratio of antenna to head as 14:15; postantennal organ with 4 peripheral tubercles; eyes 5 and 5 on dark eyepatches; mouthparts suctorial; tibiotarsus without distal subsegment; claws not tunicate; ratio of unguiculus to unguis as 5:8; tenent hairs 1; unguis with 1 tooth; unguiculus without teeth; furcula not ankylosed, reaching Abd III; manubrium to dens to mucro as 36:16:5; dental spines absent; dentes with dorsal crenulations; anus terminal; anal spines 2, each about 0.3 length of unguis III; Abd V and VI strongly demarcated from rest of body; body length 1.1 mm.

DISCUSSION. It is with pleasure that I name this species for Dr. C. Clayton Hoff, Professor of Biology, University of New Mexico, whose diligent collecting made this study possible.

Xenyllodes hoffi is differentiated from other known members of the genus by the following combination of char-

acters: Integument minutely granulate; postantennal organ with 4 tubercles; each foot with 1 strongly knobbed tenent hair; unguiculi well developed; Abd V and VI demarcated strongly from rest of body.

Xenyllodes pallescens, sp. nov. Figure 3.

TYPE LOCALITY. *Holotype* and 9 *paratypes* from Mt. Withington, SW of Magdalena, Socorro Co., NEW MEXICO; Berlese of limber pine litter, 10,300 ft., 13-ix-1954.

DESCRIPTION. Body elongate, not subglobose; segmentation distinct, segments without ankylosis; integument minutely tuberculate; clothed by short setae; essentially white with extremely minute dark blue specks visible upon close examination; head prognathous; antenna subequal to head in length; postantennal organ with 3 tubercles; eyes 5 and 5 on gray eyepatches; mouthparts suctorial; claws tunicate, unguiculus minute; tenent hairs absent; unguis with 4 teeth; furcula not ankylosed, not reaching colophore; mucro lamellate; anus terminal; anal spines 2, each five-eighths length of unguis III; body length 0.5 mm.

DISCUSSION. *Xenyllodes pallescens* is differentiated from other known members of the genus by the following combination of characters: Integument minutely tuberculate; postantennal organ with 3 tubercles; tenent hairs absent; unguiculi well developed; Abd V and VI not demarcated strongly from rest of body.

Genus **Anurida** Laboulbene, 1865

Furcula absent; eyes 5 and 5 or absent; postantennal organ with 6-40 tubercles; anal spines absent.

Anurida violacea sp. nov. Figure 4.

TYPE LOCALITY. *Holotype* and 7 *paratypes* from Cedro Canyon, Manzano Mts., Bernalillo Co., NEW MEXICO; Berlese of oak-pinyon litter, 7,200 ft., 11-v-1952.

DESCRIPTION. Body elongate, not subglobose; segmentation distinct, segments without ankylosis; integument minutely tu-

berculate, clothed by short setae; violet with indistinct transverse black stripes laterally, and sharply defined transverse narrow black stripes at the posterior edge of Abd IV and V; head prognathous; ratio of antenna to head as 9:11; Ant III and IV semiconfluent; postantennal organ present, with 10-16 tubercles; eyes 5 and 5 on dark eyepatches; mouthparts succtorial, not projecting in a cone; tibiotarsus with distal subsegment; claws not tunicate; unguiculus absent; long terminal hair of tibiotarsus resembling tenent hair, but unknobbed; unguis with 1 tooth; furcula absent; anus terminal; anal spines absent; body length 0.8 mm.

DISCUSSION. This species is quickly distinguished from other members of the genus by its beautiful violet color. Other distinctive features are the tubercles of the postantennal organ and the arrangement of ocelli.

Tribe *Neanurini* Börner, 1901

Anal segment large; supra-anal valve bilobed; segmental tubercles present; buccal cone present.

Genus *Neanura* MacGillivray, 1893

Maxilla head lance-like, without teeth or lamellae; Abd VI visible from above; postantennal organ usually absent, when present with more than 100 tubercles; unguiculus, furcula, and anal spines absent.

Neanura aurantiaca Caroli, 1910.

NEW MEXICO RECORDS. Berlese of rotten pine logs, 7,600 ft., La Cueva, Jemez Mts., Sandoval Co., 23-vii-1950.

DISTRIBUTION. N. M., N. Y., Europe.

Neanura gigantea (Tullberg, 1876).

NEW MEXICO RECORDS. From beneath rocks, aspen gulley, 9,700 ft., along Hyde Park Road, NE of Santa Fe, Santa Fe Co., 28-vii-1953; and from Berlese of (1) aspen-fir litter, 9,700

ft., along Canjilon Road, at divide W of Vallecitos, Rio Arriba Co., 13-viii-1953. (2) aspen litter, 9,200 ft., SW of Santa Fe Ski Run, Santa Fe Co., 27-vii-1953.

DISTRIBUTION. Cal., N. M.

Neanura magna (MacGillivray, 1893).

NEW MEXICO RECORDS. From Berlese of rotted log and associated debris, fir community, 8,300 ft., Tejano Canyon, Sandia Mts., Bernalillo Co., 3-xi-1950.

DISTRIBUTION. N. M., Ohio.

Neanura muscorum* form *muscorum (Templeton, 1835).

NEW MEXICO RECORDS. Sandia Mts., Bernalillo Co., from Berlese of (1) rodent midden heap of fir cone scales, 10,300 ft., near Sandia Crest, date unknown; (2) fir-aspen litter, 9,200 ft., 14-vii-1951; (3) oak litter, 7,400 ft., Doc Long's Picnic Area, 29-v-1951.

DISTRIBUTION. Conn., Ill., Iowa, La., Maine, Minn., N. H., N. M., N. C., Ohio, Pa., Ontario (Canada), Mexico, Europe, Australasia.

Neanura muscorum* form *persimilis Mills 1934.

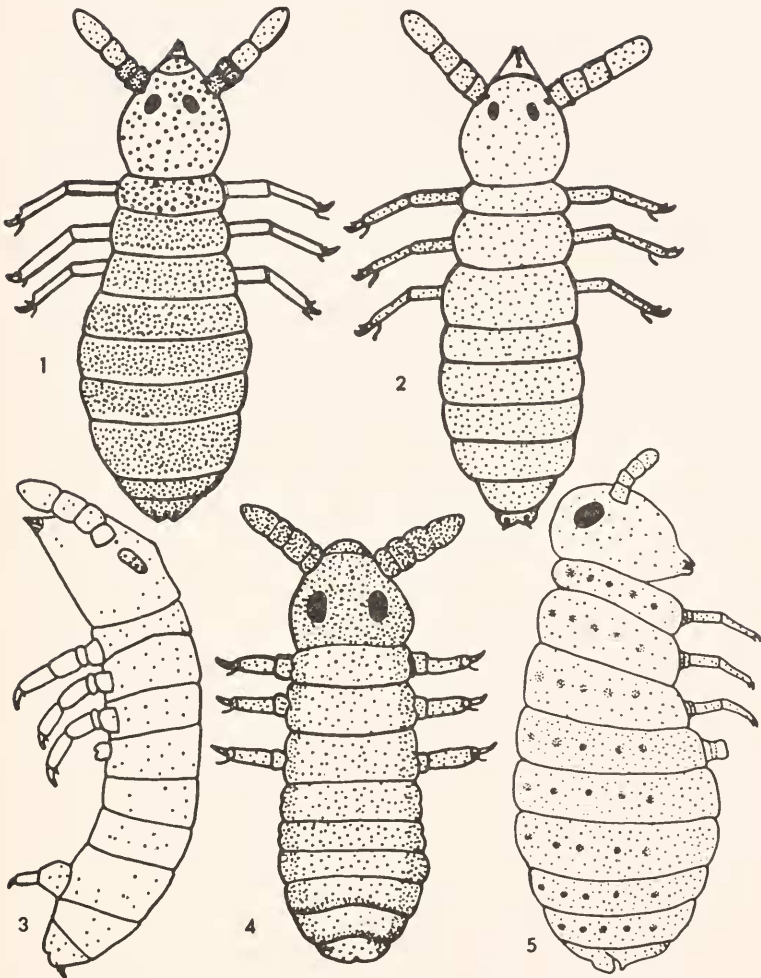
NEW MEXICO RECORDS. From Berlese of alder-fir litter, moist area along river, 7,800 ft., along N. M. Route 3, just E of Rio Pueblo, Taos Co., date unknown.

DISTRIBUTION. Iowa, N. M., N. C., Texas.

Neanura serrata Folsom, 1916.

NEW MEXICO RECORDS. From Berlese of (1) Gambel oak litter, 7,300 ft., S of Cebolla, N of Echo Amphitheatre, Rio Arriba Co., 3-ix-1952; (2) birch litter, 8,000 ft., Columbine Camp, W of Red River Village, Taos Co., 19-viii-1953; (3) aspen litter, 10,800 ft., Aspen Hill, near Santa Fe Ski Run, Santa Fe Co., 11-viii-1953.

DISTRIBUTION. N. M., Ore.



FIGURES: (1) *Xenyllodes alpinus* sp. nov., holotype, dorsal view; (2) *Xenyllodes hoffi* sp. nov., holotype, dorsal view; (3) *Xenyllodes pallescens* sp. nov., holotype, lateral view; (4) *Anurida violacea* sp. nov., holotype, dorsal view; (5) *Neanurodes neomexicanus* gen. et sp. nov., holotype, lateral view.

Genus *Neanurodes* gen. nov.

TYPE SPECIES. *Neanurodes neomexicanus* gen. et sp. nov.

DESCRIPTION. Body elongate, not subglobose; segmentation distinct; pronotum setaceous, not greatly reduced, of the same texture as the other segments; head prognathous; mouthparts suctorial; pseudocelli absent; anal spines absent, furcula present, anal segment moderately large; supra-anal valve bilobed; small segmental tubercles present; buccal cone present; maxilla head lance-like, without teeth or lamellae; Abd VI visible from above; postantennal organ present, with about 20 peripheral tubercles, eyes 8 and 8, tibiotarsus without distal subsegment.

DISCUSSION. This genus appears to be intermediate between the tribes Pseudachorutini and Neanurini, showing characteristics of both. The following key differentiates *Neanurodes* from other genera of Neanurini:

1. Maxilla head with teeth and lamellae.....2
 Maxilla head lance-like, without teeth or lamellae.....3
2. Abd VI visible dorsally.....**Protanura**
 Abd VI hidden dorsally by Abd V.....**Morulina**
3. Segmental tubercles large; postantennal organ usually absent, when present with more than 100 tubercles;.....**Neanura**
 Segmental tubercles small; postantennal organ present, with about 20 tubercles.....**Neanurodes** gen. nov.

Neanurodes neomexicanus gen. et sp. nov. Figure 5.

TYPE LOCALITY. Just N of Alameda, Bernalillo Co., NEW MEXICO; Berlese of cottonwood litter on sand, 5,000 ft., 2-vi-1954.

DESCRIPTION. Body elongate, not subglobose; segmentation distinct, segments without ankylosis; integument rough, with small intersegmental tubercles of the Neanurini type, but much smaller than those of any previously described species of that tribe; pale yellow marked uniformly with minute brown spots; eyespots, antennae, legs and furcula violet-brown; clothed by short setae; head prognathous; antenna short and stubby, ratio of antenna to head as 6:11; ratio of antennal segment 7:6:10:10; Ant III and IV semiconfluent; postantennal organ present,

with about 20 peripheral tubercles; eyes 8 and 8; mouthparts suctorial with a buccal cone; tibiotarsus without distal subsegment; furcula present, short, well developed; anus terminal; anal spines absent; supra-anal valve bilobed; length 0.9 mm.

SUMMARY

Record is made of 13 species of neanurine Collembola from New Mexico: *Pseudachorutes aureofasciatus*, *P. subcrassoides*, *Friezea claviseta*, *F. pentacantha*, *Xenyllodes alpinus* sp. nov., *X. hoffi* sp. nov., *X. pallescens* sp. nov., *Anurida violacea* sp. nov., *Neanura aurantiaca*, *N. gigantea*, *N. magna*, *N. muscorum*, and *Neanurodes neomexicanus* gen. et sp. nov. All species are new records for the state. Ecological data are presented for each species.

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Obituary

Dr. AUGUST THIENEMANN, Director Emeritus of the Hydrobiologische Anstalt of the Max Planck Gesellschaft, died April 22, 1960. Professor Thienemann had directed the work of the Institute for 40 years and is considered the father of modern limnology.